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WHAT IS CLAIMED IS:

1. A flat board die assembly for cutting and scoring carton blanks formed of paperboard and the like, comprising:

a die board having opposed major surfaces and a plurality of marginal side surfaces, said die board having a plurality of slots receiving rules therein, said slots and said rules having thicknesses sized to permit a friction fit of said rules inside said slots, said die board having a lightweight construction no greater than about three pounds per square foot; and

a die chase surrounding the marginal edges of said die board; and

means operatively connected to said die board and said die chase for maintaining positional relation between said rules within a range of about ± 0.002 inches.

2. The flat board die assembly of claim 1 and further comprising:

a steel counterplate coacting with said rules in said die board to produce cutting and scoring impressions in the carton blanks; and

wherein said die board having a non-cellulose construction which is substantially resistant to warpage, shrinkage and expansion due to humidity and temperature and yet is deformable under pressure caused by insertion of said rules into said slots.

3. The flat board die assembly of claim 2 wherein said die board having a laminated structure including an inner core which is of a rigid polyurethane material, said inner core having opposed major surfaces, said die board further having a cover sheet secured to one of said opposed major surfaces, said cover sheet formed of a non-cellulose material which is different from said inner core.

4. The flat board die assembly of claim 2 wherein said maintaining means includes a plurality of perimeter rails secured to the marginal side surfaces of said die board.

5. The flat board die assembly of claim 4 wherein said maintaining means further includes a plurality of corner blocks secured to said die board and connecting adjacent ones of said perimeter rails.

6. The flat board die assembly of claim 4 wherein said maintaining means includes at least one inner rail spanning between opposed marginal sides of said die board and an adjustable connector connecting said inner rail and opposed ones of said perimeter rails, wherein said adjustable connector compensates for dimensional differences between rail and said die chase.

7. The flat board die assembly of claim 6 wherein said maintaining means further includes a plurality of corner blocks secured to said die board and connecting adjacent ones of said perimeter rails.

8. The flat board die assembly of claim 6 wherein said maintaining means includes a plurality of inner rails, at least one of said inner rails extending in a direction which is substantially perpendicular to another of said perimeter rails.

9. The flat board die assembly of claim 3 wherein said cover sheet is comprised of a cured fiber reinforced epoxy resin, said cover sheet being secured to said inner core with an adhesive.

10. The flat board die assembly of claim 9 wherein said laminated die board includes a top cover sheet and bottom cover sheet secured to opposed surfaces of said inner core.

11. A flat board die assembly for cutting and scoring carton blanks formed of paperboard and the like, comprising:

a die board having opposed major surfaces and a plurality of marginal side surfaces, said die board having a plurality of slots receiving rules therein, said slots and said rules having thicknesses sized to permit a friction fit of said rules inside

said slots, said die board having a lightweight construction no greater than about three pounds per square foot, said die board further having a laminated structure including an inner core which is of a rigid polyurethane material, said inner core having opposed major surfaces, said die board further having a cover sheet secured to one of said opposed major surfaces, said cover sheet formed of a different material than said inner core;

a steel counterplate coacting with said rules in said die board to produce cutting and scoring impressions in the carton blanks; and

a die chase surrounding the marginal edges of said die board.

12. The flat board die assembly of claim 11 wherein said die board having a non-wooden construction which is substantially resistant to warpage, shrinkage and expansion due to humidity and temperature and yet is deformable under pressure caused by insertion of said rules into said slots.

13. The flat board die assembly of claim 12 wherein said cover sheet is formed of a more rigid material than said core, said cover sheet having a plurality of slots receiving therethrough said rules in a loose sliding fit.

14. The flat board die assembly of claim 13 wherein said cover sheet is comprised of a cured fiber reinforced epoxy resin, said cover sheet being secured to said inner core with an adhesive.

15. The flat board die assembly of claim 11 and further comprising:

means operatively connected to said die board and said die chase for maintaining positional relation between said rules, within a range of about ± 0.002 inches.

16. The flat board die assembly of claim 15 wherein said maintaining means includes a plurality of perimeter rails secured to the marginal side surfaces of said die board.

17. The flat board die assembly of claim 16 wherein said maintaining means further includes a plurality of corner blocks secured to said die board and connecting adjacent ones of said perimeter rails.

18. The flat board die assembly of claim 17 wherein said maintaining means includes at least one inner rail spanning between opposed marginal sides of said die board and an adjustable connector connecting said inner rail and opposed ones of said perimeter rails, wherein said adjustable connector compensates for dimensional differences between rail and said die chase cause.

19. The flat board die assembly of claim 18 wherein said maintaining means includes a plurality of inner rails, at least one of said inner rails extending in a direction which is substantially perpendicular to another of said perimeter rails.

20. A method for producing a lightweight, dimensionally stable rule die for cutting and scoring carton blanks formed of paperboard and the like, comprising the acts of:

providing a die board inner core composed of a polyurethane material and a first die board cover sheet composed of a more rigid material;

forming a plurality of slots in said inner core for receiving a corresponding plurality of cutting and creasing rules, said slots being sized smaller than said rules so as to provide a friction fit therewith, said inner core slots formed in a pattern for registration with said cover sheet slots but spaced a lesser distance apart based upon a compensation factor

X determined according to the following formula:

$$X = 1 - N(K_e)/L$$

wherein N equals the number of rules in a selected axial direction, K_e equals the amount of expansion per slot which occurs when the rules are inserted in the inner core slots, and L equals the total length of the inner core along the selected axial direction;

adhesively bonding said first cover sheet to said inner core; and

inserting said rules through said cover sheet slots and into said inner core slots.